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## TUBERCULOSIS CONTROL

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THE prevailing thought that tuberculosis is on the way out is a handicap in its prevention. Any disease that is the first cause of death, excepting accidents, between the ages of 5-30 years, and which kills one out of every four persons dying in the age group 16-39 years in Canada, is not under control. From September, 1939, to June 30, 1944, tuberculosis killed more Canadians, in Canada, than did our enemies in all theatres of war. Krause, in 1918, stated that during the war of 1914-18, tuberculosis accounted for more deaths than shot and shell in the warring countries.

The fact that tuberculosis caused more deaths in Canada than the infectious diseases during the five-year period 1938-42 bears repeating.

### DEATHS FROM INFECTIOUS DISEASES

Typhoid fever.....	884
Measles .....	1,071
Scarlet fever.....	730
Whooping cough.....	2,662
Diphtheria .....	1,479
Influenza .....	12,744
Poliomyelitis, all forms, encephalitis and cerebro- spinal meningitis.....	1,341
Syphilis including Loco- motor ataxia. General para- lysis of the insane and	
Gonococcus infections.....	4,094
Total.....	25,005

### DEATHS FROM TUBERCULOSIS, ALL FORMS

Average number of deaths from  
tuberculosis in each of these years  
5,988

29,944

*Based on a paper presented at the thirty-third annual meeting of the Canadian Public Health Association, held in the Royal York Hotel, Toronto, November 6-8, 1944.*

The campaign against tuberculosis should be regarded, not as an isolated or special endeavour, but as an important part of the general public health program. Though the control of other infectious diseases, better housing facilities and general living conditions will have their influence in lowering the incidence of tuberculosis, the chief factor will remain the deliberate prevention of tuberculous infection.

There is need for both official and voluntary agencies in the fight against tuberculosis; each is required and is complementary to the other. It is essential that all realize that the medical and nursing professions are not by themselves equipped to meet the demands associated with tuberculosis control. Tuberculosis prevention requires not only physicians (specialists, general practitioners, medical officer of health) and public health nurses, but also lay groups. The lay groups should comprise executives, community leaders, voluntary organizations, and municipal and provincial official organizations. The complete co-operation of family physicians is necessary to the success of the program. The majority of people presenting themselves for clinic investigation and a large percentage of those entering sanatoria do so solely under the direction of their physician.

In this discussion particular reference will be made to the five chief factors in tuberculosis prevention, namely (1) early diagnosis of the disease, (2) prompt sanatorium treatment, (3) adequate post-sanatorium care, (4) social service, and (5) rehabilitation.

Up until three years ago the pace of tuberculosis control was governed by the speed with which medical officers of health, private physicians and public health nurses could refer contacts of known cases and suspected cases to stationary and travelling clinics. A program, based only on the examination of these groups, would be only relatively efficient because eighty per cent of persons having unknown active disease are not conscious of being ill. Human lives, no matter how few, are too valuable to leave unprotected from a preventable disease. Unless more active procedures are taken, many persons will be left exposed to unknown sources of infection and many victims sacrificed before effective preventive machinery even begins to move.

The development of Photo-roentgen equipment with the associated technique has made possible mass x-ray examinations of apparently healthy people. Together, mass surveys and contact follow-up constitute more effective action in tuberculosis control.

With this new development, those engaged in tuberculosis prevention need no longer be discouraged by their past failure to reduce the number of far advanced cases entering sanatorium. Given the personnel and equipment, one has reason to hope that the mortality from tuberculosis can be cut in half in the next ten years.

The importance of surveys of groups of apparently healthy people is well illustrated in the following table.

Percentage of classifications of all admissions to Ontario sanatoria in 1943		Percentage of classifications of all active tuberculous cases found by mass surveys in Ontario, 1943	
21	Minimal	57	
33	Moderately advanced	30	
44	Far advanced	13	

On the left is shown the percentage of patients entering sanatoria in Ontario during 1943 with disease in the minimal, moderately advanced and far advanced stages. The figures on the right show the classification of those found, in mass surveys during the same year, to have active tuberculosis requiring treatment. The fact that, when the disease is in the minimal stage, more than two and a half times the percentage of active cases of tuberculosis will be found by mass surveys than by ordinary clinic methods, illustrates the importance of this procedure. The value of mass surveys is even more appreciated when it is known that 45 per cent of persons entering sanatoria with far advanced disease are discharged by death while less than 6 per cent entering with minimal or moderately advanced disease die within the sanatoria.

It is evident that until admissions to sanatorium with minimal and moderately advanced disease are considerably in excess of admissions with far advanced disease, we cannot hope to solve the tuberculosis problem.

Unless adequate x-ray facilities are provided, and films made readily available for all patients, the control of tuberculosis will be held back. The question of payment of x-ray fees, by patients, still remains a deterrent to progress in most provinces. The unfortunate person who has contracted tuberculosis, or been in intimate contact with the disease, should not be required to present himself for examination and then be asked to pay the x-ray fee. The expense involved for the discovery of unknown sources of infection, which is for the protection of the public, should not be borne by the afflicted person, but out of moneys raised by the sale of Christmas seals, and other voluntary givings, and funds provided by the state or municipality, or both.

#### ADEQUATE TREATMENT FACILITIES

Obviously, the number of sanatorium beds should depend upon the extent and the result of diagnostic activities, not upon that false index "beds per death". If there are patients with tuberculosis awaiting admission to sanatoria, it is self-evident that there are insufficient beds, irrespective of the ratio of beds to deaths. Waiting lists indicate shortage of beds.

Sanatorium treatment not only protects the public, by segregating spreaders of infection, but renders a high percentage of such patients non-infectious on discharge. Figures for some hundreds of cases in Ontario sanatoria show that 60 per cent enter with positive sputum and of these 66 per cent are discharged with negative sputum.

Tuberculosis is a needless and costly disease: needless in that it is preventable; costly because none can afford it. In Ontario less than 1 per cent of patients in sanatoria are financially able to meet the entire cost of their treatment, and

less than 12 per cent are able to contribute anything toward their sanatorium maintenance, let alone meet the other associated expenses. From the foregoing, one may deduce that a patient may have tuberculosis because he is poor, or he may be poor because he has tuberculosis—a vicious circle often prevails between tuberculosis and poverty.

The question of financial ability of the patient to meet the cost of diagnosis and treatment has no place in any control program.

#### ADEQUATE POST-SANATORIUM CARE

The policy of spending \$1,000.00 to \$3,000.00 on the treatment of a tuberculous person, and permitting him to return home with no provision made for adequate post-sanatorium care, is decidedly shortsighted, and an economic fallacy. The responsibility of providing proper after-care is undoubtedly that of the local health department. The enlightenment and attitude of health and welfare officials will determine, in many instances, whether or not the disease of a patient returning from the sanatorium will remain arrested, and the patient become a self-supporting citizen, or whether his tuberculosis will be allowed to reactivate, thus endangering other members of his family and community, and causing additional expense for further treatment. Approximately twenty-five per cent of all sanatorium admissions are patients re-entering sanatorium for the second or third time. There should be just as close correlation between the activities of the welfare and public health officials as between sanatoria and the clinics.

#### SOCIAL SERVICE

Social service should become more closely allied with tuberculosis control than it has in the past.

When the wage earner is stricken with tuberculosis, a tremendous adjustment is required in the living habits of the other members of the family. The steady income usually ceases abruptly, and the family provider is reluctant to enter a sanatorium, leaving his family unprovided for. A mother contracting tuberculosis is also loath to enter sanatorium until reasonable provision has been made for the care of her children.

Many of these social and economic factors, which inhibit the control of tuberculosis, may be overcome if the welfare agency, in co-operation with the health authorities, takes a liberal and generous attitude toward the other members of the family who are potential cases of tuberculosis. Money spent in this manner should not be looked upon as charity, but as an investment or insurance by the state or municipality against future and large expenditures, which will undoubtedly follow if a niggardly policy is followed. Penny-wise policies will only add to the burden of the future taxpayer. It must never be overlooked that every case of tuberculosis prevented, either as the result of segregation of an infectious case, in a sanatorium, or the provision of proper standards of living within the home represented by tuberculosis, is not only money saved to the treasury but a life to the nation.

The Ministry of Health of Great Britain has plans for the payment of allowances, under direction of local authorities, to patients undergoing treatment,



and also to their families or dependents. This scheme includes assistance in meeting responsibilities previously undertaken by patient or family, such as payment to buildings societies, hire-purchase of furniture, premiums on insurance policies, and education of children.

### REHABILITATION

Rehabilitation of patients discharged from sanatorium has been largely overlooked, or at least plays a very small part in the over-all tuberculosis control program. In many instances there has been an emotional disturbance, and the recently discharged patient re-enters civilian life apprehensive as to security and with ideas of inferiority, and generally ill-prepared to compete with others more favourably situated in striving for an adequate livelihood.

The solution of this problem must begin while the patient is still in sanatorium. Some type of patient-adjustment program is indicated in every sanatorium. Many patients do not adjust themselves well to sanatorium routine. It is believed that, if the patient's worries and fears could be allayed, better results would be obtained by treatment. Each sanatorium should have an officer who has had some training in social and vocational work and who, from the medical findings, can evaluate the patient's potentialities and plan for his future activities, both while an in-patient and after his discharge.

The peculiar nature of the disease further handicaps the patient in that usually a prolonged gradual return to normal activities is necessary. Full-time occupation, at first, is out of the question, and carefully graduated increase in hours of work is of paramount importance.

It is unfortunate that an ex-patient of sanatorium is often looked at askance, and employers frequently refuse to employ inactive cases of tuberculosis as they are fearful of complaints from others working in the same plant or office, or of the effect upon superannuation schemes. It is imperative, therefore, that every effort be made to sustain the morale of such individuals, and assist their return to a gainful occupation where they can once more resume a normal life.

Immediately following discharge from sanatorium, the patient should be placed under the supervision of a well trained rehabilitation service working in co-operation with employment centres for handicapped persons. With the intelligent assistance of each agency, the patient should once more become an asset to the community. Some such scheme should be instituted as early as possible. Thought should be given to the training of necessary personnel.

### SUMMARY:

The following are facts, and all in authority should recognize their significance:

1. Sixteen people in Canada die from tuberculosis each day of the year.
2. During the last ten years, approximately 60 per cent of all tuberculosis deaths occurred in most productive age group of life, 20-49 years. Further, over 60 per cent of all patients entering sanatoria are in this age group.
3. The average cost, including loss of wages, clinic service, and hospital care (no matter by whom paid) when a male wage earner is incapacitated

because of tuberculosis, has been estimated at \$5,400.00, and when a female wage earner is incapacitated and requires treatment, at \$5,000.00.

4. The average cost to the taxpayer, for assistance to a family because of tuberculosis, has been estimated by the Mothers' Allowance Commission of this Province to be \$2,800.00.

5. It has been estimated in Ontario that, for approximately every seven dollars spent in treatment, only one dollar is spent on prevention. This probably applies to other provinces.

6. If we are to wipe out this preventable disease, there must be:

- (a) Adequate diagnostic facilities, which should include enough mass survey equipment, and personnel, to make possible an x-ray film of the lungs for every citizen at least once every five years.
- (b) Sufficient beds to permit prompt sanatorium treatment for every person with active tuberculosis.
- (c) Adequate public health nursing services.
- (d) Proper post-sanatorium care.
- (e) Social services to make possible a higher standard of living in families represented by tuberculosis.
- (f) Rehabilitation of the handicapped patient.

If these facilities were available, the road ahead would be clear, and people in all parts of our country would be protected against tuberculosis.

The pioneering period is over. The result of a planned attack on tuberculosis needs no restating here. There is a new spirit abroad among the people in regard to what can be done to prevent disease, and they are demanding an all-out program which should be the go-ahead signal to all governments and health departments.

## TUBERCULIN TESTING

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A tuberculin test survey of the secondary school students of Toronto provided an opportunity to make a comparative study of the Vollmer patch and Mantoux intracutaneous methods of tuberculin testing. Many somewhat similar studies have been reported and it has been generally accepted that the patch test and the intracutaneous test, using 0.01 mg. old tuberculin in 0.1 cc., give a close correspondence in the number of reactors found. However, the former possesses certain advantages such as ease of application and acceptability to children and parents alike. It might well, therefore, have a place in the conduct of large group surveys, provided that no significant failure in the detection of tuberculin sensitivity is apparent. It was to test this factor under local conditions of administration and personnel that the present study was undertaken. The results obtained may be of some general interest as well.

### PROCEDURE

Two schools with a total enrolment of approximately 1,250 students were selected for the "double testing" experiment. The tests were applied and read by individuals experienced in this work. Tuberculin containing 0.05 mg. in 0.1 cc. was used for the intracutaneous tests. The patches used were those of the Lederle Laboratories Inc. The tests were applied after cleansing the skin of the volar surface of the forearms with a mixture of acetone and ether in the accepted manner. The intracutaneous tests were read at 48 hours and reactions with induration measuring 5 mm. or more in diameter were considered positive. The patches were removed at 48 hours and the tests read at 96 hours. Reactions to the patch test were recorded as positive when infiltration, redness and "lichenoid-follicular elevations" were present in the areas of the test squares and the control area remained blank.

### RESULTS

Permission of parents to apply both tests could not be obtained for all students in the two schools, so that while the great majority received both tests some received the patch and others the intracutaneous test only. This distribution is shown in Table I.

TABLE I  
TUBERCULIN TESTING  
X and Y Collegiates  
February 1944  
TESTS DONE

School	Combined (Patch and I.C.)	Patch Only	I.C. Only	TOTAL
X	367	41	28	426
Y	751	61	11	823
TOTAL	1108	102	39	1249

Four children were absent when readings were made, and a number of those who received both tests were present only for the intracutaneous test reading. The reactions of the children were as shown in Table II.

TABLE II  
DISTRIBUTION OF CHILDREN AND POSITIVE READINGS  
BY TYPE OF TEST

	Both Done		I.C. Only	Patch Only	Totals	Per Cent
	Both Readings Made	I.C. Only Read				
No. + or + ?	105	5		12	122	9.8
Negative	935	95		84	1114	89.5
No. ? (- ? or ?)	5	1		3	9	0.7
TOTAL	1045	62	39	99	1245	100.
		101				

It is apparent that of the 1,245 students tested and read, approximately 90 per cent were negative and 10 per cent positive. This incidence of tuberculin sensitivity is in close agreement with the results for all the secondary schools of the city. Of 16,820 pupils tested and read in 1944, 1,738 or 10.3 per cent were positive. Apart from the two schools where the "double testing" was done, the patch test alone was used. In a 1940-41 survey of the secondary schools of this city 12.9 per cent were positive out of a total of 19,629 students tested and read. In this instance the intracutaneous test was employed, using 0.05 mg. old tuberculin.

The age of the students ranged from 12 to 20 years but significant differences according to age were not apparent, possibly due to the small number of positive reactors. There was a small difference between the two schools; in one case 8 per cent were positive and in the other 11 per cent. Likewise, the difference according to sex was small, 11 per cent of the girls and 9 per cent of the boys being positive.

In Table III is shown the distribution of those who received both tests and showed any degree of reaction to one or both tests. The different combinations of readings are shown in Row A, columns 1 to 8, and in Row B

the number of individuals in each category. If one adds the 935 (from Table II) who were negative to both tests to the 85 in Table III who were positive to both tests, agreement between the patch and intracutaneous methods is 97.6 per cent. However, considering only the 85 who were positive to both tests among the 110 who showed any degree or suggestion of positive reaction to one or both tests, the agreement is only 77.3 per cent. In the 25 whose tests were not in agreement (Columns 2 to 8) the intracutaneous test appears more sensitive than the patch test in about the order of 2 to 1, as indicated in Row C.

In a survey involving large numbers of persons, testing and reading would be done only once, and on this basis our results would remain as shown in Rows B and C. However, in this case, it was decided to repeat the tests on those whose tests disagreed. Of these, only 17 of the 25 were available for re-testing and their distribution is shown in Row D. Of the 4 in column 3 who were re-tested, 1 remained the same, 1 was negative and 1 positive to both tests and 1 became P - I.C. + ?. The remaining 13 (columns 4 to 8) were negative to both tests. After reallocating these according to the readings of the repeat tests and leaving in their previous category, those not re-tested, the number in the different categories becomes as shown in Row E. Since 14 of those re-tested were read as P - I.C. - the total is reduced to 96 and agreement increased to 89.6 per cent (Row F). Among those still not in agreement there is a definite indication that the intracutaneous is more sensitive than the patch test.

TABLE III  
COMPARISON OF POSITIVE READINGS IN CHILDREN HAVING "BOTH TESTS"  
Including ( + ? ) ( ? ) ( - ? )

Row	Column	1	2	3	4	5	6	7	8	
A	Readings . . .	P + I.C. +	P? I.C. +	P - I.C. +	P - I.C. + ?	P - I.C. - ?	P + ? I.C. -	P + I.C. -	P + I.C. ?	TOTALS
B	Number . . . .	85	1	7	4	5	2	5	1	110
C	Per Cent . . .	77.3	15.4				7.3			100
D	Number Retested . . .			4	3	4	2	3	1	17
E	Number after Reallocation	86	1	4	2	1	0	2	0	96
F	Per Cent . . .	89.6	8.3				2.1			100

#### DISCUSSION

In this study the over-all agreement between the intracutaneous and patch methods of tuberculin testing was 97.6 per cent when those negative to both tests and those positive to both tests are included. Including only the former, 89.5 per cent of persons would have been recorded as negative by either test. In those showing any degree or suggestion of a positive reaction the intracutaneous test was found to be more sensitive. This would appear at first to

be an advantage as it is probably better to err on the side of false positives than false negatives. However, it depends, actually, on whether one is interested in determining the extent of tuberculin sensitivity or whether the primary purpose is case finding. If the latter, it is generally accepted that the minimal reactions to the higher concentrations of tuberculin are rarely associated with active disease. In that case the choice of test might depend on other considerations such as available personnel, cost, consent of parents, and so forth.

The discrepancy in reading and interpretation revealed in Table III is rather disconcerting at first sight. However, anyone familiar with either the patch or intracutaneous test recognizes the difficulty in this regard when the reactions are minimal. A further contributing factor in this experiment is the fact that several operators were concerned in both testing and reading. This is, of course, a normal condition for large surveys and the figures presented may be taken to portray what happens in actual practice.

While in this survey the patch test was found to compare reasonably well in sensitivity with the intracutaneous test, other workers have experienced disturbing failures. Candib (1) states that he obtained "disappointing" results with the patch test in contrast to the Mantoux test in tuberculous cases. For this reason, a trial was made of a modified patch test in which the skin, after cleansing with ether, is scarified with one or two horizontal or vertical scratches 1/8 to 1/4 inches in length before the patch is applied. This method was compared with the regular patch test, and in one group of 114 children with tuberculous lesions 93 per cent were positive to the modified and only 54.4 per cent to the regular patch test. In a second group, "allergic reactors without tuberculous lesions," of 14 all were positive to the modified patch test and only 5 to the regular patch test. A normal group of 101 children were uniformly negative to both tests. The modified patch test is superior, apparently, because of better absorption of tuberculin. The discrepancy in results between the modified and regular patch tests was most marked in the older children of the 114 cases of Group I and the authors suggest that differences in skin texture, with better absorption in the young, affects the sensitivity of the test.

The inferiority of the regular patch test in these trials is too obvious to require comment. It is unfortunate that a Mantoux test was not included in the study. However, the modified patch test as described loses the great advantage of simplicity of the regular patch test and one would feel that it would be preferable to employ the Mantoux test.

In a recent report Bell and Jerram (2) have also condemned the patch test. In a group of sanatorium children with diagnosed active tuberculosis, only 31 were positive to the patch test as compared to 58 reacting to 0.01 mg. old tuberculin intracutaneously. In a group of 101 children who were positive to 0.01 mg. old tuberculin intracutaneously and who were attending a hospital because of signs or symptoms suggestive of tuberculosis only 31 were positive to the patch test. Of 21 children who failed to react to 0.01 mg. but were positive to 0.1 mg. old tuberculin intracutaneously, none were positive by patch test. The patches used in their study were fresh and from one source.

Readings were made after 48 hours, presumably from time of application rather than removal of patch, though this point is not made clear. Their patch test results were so poor that they conclude "the Vollmer patches used in this investigation appear to be unreliable to the point of being valueless."

In a personal communication Pope, (3) has called our attention to the problem of pseudo-reactions with patch tests. In one city 50 per cent of grade school children were positive to the patch test while in neighboring towns the intracutaneous method gave only about 10 per cent reactors. One of the biological houses reported to him that pseudo-reaction with patch test material was a source of considerable trouble at that time.

#### SUMMARY AND CONCLUSIONS

The results obtained in this small survey indicate that the patch test is slightly less efficient than the Mantoux test, using 0.05 mg. old tuberculin, in the detection of tuberculin sensitivity. The degree of difference, however, is not great enough to rule out the use of the patch test for large surveys in view of the advantages of this test referred to above. However, it would appear from the experience of other workers that the patch test is subject to gross irregularities and in general it would seem the part of wisdom to employ the more reliable Mantoux test.

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## THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS\*

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“IF nations cannot learn to co-operate on a broad humanitarian basis, such as that found in the F.A.O., they will never be able to co-operate on contentious problems like boundary lines, types of democracy, or atomic bombs.” In various forms and various languages, this was an often-repeated thought at the Quebec meeting of the United Nations Food and Agriculture Organization, held during the month of October 1945. It was this thought, along with, and perhaps as much as, the publicized “Freedom from Want” objective that prompted the late President Roosevelt to call, right in the middle of the war, the Hot Springs Conference on Food and Agriculture which ultimately met in May, 1943. A few clear thinkers had already realized the need for the United Nations to learn how to convene in meetings under a different aroma from that of the League of Nations. The whole mechanics of bringing together the best possible brains from each country had to be explored anew and as a preparation for Relief, Finance, Security and other meetings that the United Nations would have to hold. Measures of agreement on food could initiate a cordial air for other topics. It was clear to many that the world has advanced its scientific ingenuity for destruction far beyond its understanding and ability at social organization. This has become all the more clear in the past year.

The result of the Hot Springs Conference on Food and Agriculture was to bring forth a report that suggests a new spirit in international affairs whereby all countries can take an interest in helping to improve the general welfare and standard of living in each country. It is true that the final wording of the actual recommendations was carefully considered and repeatedly modified in order to satisfy reservations by one country or another, with a result that is frequently ambiguous and almost platitudinous. But it is also true that the majority of delegates saw a new hope, not only for peace, but also for a chance to organize the world on the basis of human needs, in the belief that economic prosperity will follow, rather than the more usual procedure of organizing the economics, hoping that human needs will be taken care of. This was the vision that was well-developed at Hot Springs, but much of it was not in evidence at the Quebec meeting. The most hopeful sign of all is found in the election of Sir John Boyd Orr as Director-General, because he has this goal clearly in mind. Yet even Sir John said: “If F.A.O. succeeds it will be a miracle, *but* we live in an age of miracles”.

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### *What Does Canada Undertake to do?*

The Preamble to the Constitution which Canada, along with 36 other nations, has signed reads as follows:

"The Nations accepting this Constitution, being determined to promote the common welfare by furthering separate and collective action on their part for the purposes of

—raising levels of nutrition and standards of living of the peoples under their respective jurisdiction,

—securing improvements in the efficiency of the production and distribution of all foods and agricultural products,

—bettering the condition of rural populations,

—and thus contributing toward an expanding world economy,

hereby establish the Food and Agriculture Organization of the United Nations, through which members will report to one another on the measures taken and the progress achieved in the fields of action set forth above".

The Constitution and the Rules and Regulations elaborate certain details implicit in this preamble, of which none is more important than making periodic reports.

### THE QUEBEC MEETING

*The Conference* was divided into six committees: Nutrition and Food Management, Agriculture, Forestry, Fisheries, Marketing, and Statistics, and each Committee issued a report.

*The Nutrition Committee* emphasized the health aspects of many of its problems, and demanded full co-operation with health organizations and officials, both national and international. It stressed the value of concentrating efforts at improved distribution of foods to low-income groups, pregnant women, children and adolescents. It skirted delicately the problems of relief allowances, and managed to avoid trouble over the many contentious aspects of nutrition, such as dietary requirements.

*The Agriculture Committee* emphasized immediate needs for food, seed, fertilizer, machinery, and extension services in many countries, and considered soil improvement, small industries, credit, co-operatives and many other topics. Considerable attention was paid to the welfare of people, including transportation, health services, housing, sanitation, etc.

*The Forestry Committee* found itself repeatedly explaining its right to be in F.A.O. because it represents the other great use of land in addition to agriculture, and it is important for conservation of both land and fishing industries, as well as contributing a most important natural product for fuel and housing.

*The Fisheries Committee* was concerned at once with developing new fishing grounds to supply cheap, much-needed protein to many people, and also with conservation methods in the common fishing grounds in order to keep them going with advantage to all.

*The Marketing Committee* paid a little attention to grading, labelling, advertising and shipping of foods, but much more to economic problems, some of which were barely stated let alone solved. The familiar paradox was restated of urging farmers to produce foods because people need them, even if prices are not remunerative, as against paying farmers not to produce (or to destroy their crops)

when people are going hungry. The tendency was to think of prices and remuneration quite separately from people's needs.

*The Statistics Committee* pointed out that one of the first duties of governments to F.A.O. is to present many kinds of figures on all aspects of the organization, and then to receive from F.A.O. an analysis of these figures from other countries. If this can be developed into an accurate and rapid service, it will be one of F.A.O.'s biggest contributions, along with a general information service of wide scope.

F.A.O. has a Director-General. Staff will have to be secured. It is proposed to try to borrow personnel from various countries, to get things started. F.A.O. must build a library, and arrange contacts with many other international organizations. The reports do not contain precise statements of things that will positively be done in the near future because no one wanted to bind the new staff to what might prove to be impossible undertakings. Nevertheless, this procedure left matters rather vague, even though many reports were quite wordy. It seems probable that for some time F.A.O. will have two chief objectives: one is to collect suitable statistics, information and reports from member countries, and the other is to carry out whatever missions or services are requested and lie within the possibilities of the staff available.

The clearest thing in all the reports is that the peoples of each country must make the initial steps forward to freedom from want; that they do not need to wait for more surveys or technical developments, since the application of existing knowledge is still far from complete; that F.A.O. is not going to do these things for each country except as a means to help them to help themselves; and, finally, that F.A.O. is going to be useful to a country only to the extent that the country is organized to use it.

It was very clear that the world must be considered in two classes: the highly industrialized countries (which sometimes call themselves the more advanced countries), and the less developed countries. Each country decides its own position—F.A.O. does not do so; but the approaches must be different in the two cases. The former have serious problems of adjusting production, consumption and income rather than of technical development, while the latter have a tremendous need for improved technical methods coupled with some decentralized industrial development.

### *Periodic Reports*

The Periodic Reports referred to in the Constitution are to indicate what progress has been made toward the objectives of the organization. This would include a record of any improvement in the level of nutrition and standard of living, as well as achievements in agriculture, fisheries and forestry. Unless a country is organized to supply this information systematically, and to evaluate it on the basis of the welfare of its people, then it cannot satisfy this pledge, nor can it benefit properly from F.A.O. Furthermore, at some future time, F.A.O. will be able to suggest various international arrangements that would improve the free flow of goods; these will have to be watched for their real contribution

to the welfare of people, rather than simply a contribution to trade or the vague concepts like the "national income". There were indications at Quebec that the real state of the people might be lost sight of in the scramble for "better marketing". There is no indication yet of how Canada will be organized to deal with F.A.C.

It is at this point that many Canadians interested in health and welfare are greatly concerned with F.A.O. Are nutritional levels improving? How can food be properly distributed? Are rural health services improving? What are the rural morbidity and mortality rates of certain diseases? Are school lunches in operation? Is sanitation threatened by water conservation schemes? Are distribution costs of foods too high? How well-fed are people in industries relative to rural communities? Can co-operative health schemes be recommended? These and many other questions were raised by the recent Quebec meeting as being of interest to F.A.O.

#### *What Does This Mean to Canada Right Now?*

Documents from the old League of Nations, from the Hot Springs Conference, from the Interim Commission, and now from the First Session at Quebec, all state the primary responsibility of government for the welfare of the people, particularly for having available the kinds and amounts of foods necessary to permit every citizen fullest possible development of inherent health potentialities. Emphasis is also placed on the fact that F.A.O. can be much more than a statistical machine and clearing-house by taking a lead in bringing together representatives of governments concerned in any matter that will promote the objectives of the organization. This might come to mean trade agreements on wheat and other products of great interest to Canada. The development of this function in F.A.O. will depend a good deal on the ability of its personnel, and on the confidence they can inspire in governments in the next two or three years.

F.A.O. stresses the importance of national action in solving nutritional problems. For Canada this involves a more precise statement of the extent and distribution of malnutrition among Canadians than is at present available. During the war Canada has been part of a three-country development of statistics of the national food supply per person per year, and its calculation in terms of nutrients. This is a good starting-point to show the *possible* level of national nutrition, rather than the *actual* level, since it yields average figures which give no indication of maldistribution of foods within the population. There is enough information on the latter point to show that a nutrition problem is present, even if its limits are not clear. Canada's particular problem in nutrition is not one of hunger or even near-hunger, as in some countries, but rather one of under-consumption of some desirable foods such as milk and milk products, fruits and vegetables, plus the problem of maldistribution of many foods aggravated by some people getting more while others get less than they need or want.

Those most likely to be malnourished in any country are certain groups (called "vulnerable" groups because subject to special stresses and more susceptible to adverse results from changes in food supply) who are also in the

low-income category. Family allowance payments, which were introduced in Canada in July 1945, are designed to aid one of these groups, namely infants and children in low-income families. Other aids to these and other vulnerable groups, such as expectant women, adolescents, and certain occupational groups, may have to be considered in order to do a complete job. At the same time the continuous need for study of the situation, and for education and assistance in its broadest sense, is apparent.

## PASTEURIZATION IN THE PROVINCE OF QUEBEC

WITH SPECIAL REFERENCE TO MONTREAL

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THE question of safe milk constitutes a problem everywhere, and pasteurization is important in any public health program. It has always been an interest of the Health League of Canada, whose Quebec Division was organized in 1940 with offices in Montreal and Quebec City. In 1943 the League launched an intensive campaign for the compulsory pasteurization of milk throughout the province. It requested the co-operation of all newspapers, radio talks were given, and circulars or reprints of articles by leading authorities of the province were distributed. The medical faculties of Laval, Montreal and McGill universities, scientific associations and medical societies, social and welfare organizations, service clubs, boards of trade, women's clubs, hospitals and commercial concerns sent a resolution to the Provincial Minister of Health and Social Welfare requesting the compulsory pasteurization of milk. A strong plea was also made to the Legislative Council by the Hon. Georges Simard. The campaign continued throughout the year.

Recently Dr. Gordon Bates, Director of the Health League, aroused the interest of a group of leading business men of Montreal, as well as many local newspapers, in a new campaign in support of compulsory pasteurization. A few editorials have already been published in Montreal dailies.

The League spares no effort and is giving much of its time and interest to this question in the province of Quebec. Such educational campaigns have already impressed the population and there is no doubt but that the goal will be reached, even if there is strong opposition. The program carried on by the League is intelligent, persistent and aggressive. Every day new support is acquired and, as Dr. Bates once said, when the people know the truth, there will be no difficulty.

Already many municipalities have passed legislation making compulsory the pasteurization of all milk and cream sold in the locality. Among these are the cities of Verdun, Outremont, Westmount, Drummondville, St.-Lambert, St.-Eustache-sur-le-Lac, Lachute, Brownsburg, Temiscamingue, St.-Joseph-de-Grantham, Cadillac, Noranda, Val d'Or, Malartic, Duparquet, Bourlamaque, and a few townships and villages.

To-day in the province of Quebec there are 138 pasteurization plants; eleven others are under construction, and six more projects are awaiting the endorsement of the Provincial health authorities. Eighty-three per cent of

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*Presented at the twenty-sixth annual meeting of the Health League of Canada, held in the Royal York Hotel, Toronto, on October 29, 30 and 31, 1945.*

the urban population in the municipalities of more than 1,000 use pasteurized milk. This percentage has been reached without coercion, there being no compulsory pasteurization in most of these urban centres. In the whole Province, over 300,000 gallons of milk are consumed daily; of this amount, more than 50 per cent is pasteurized.

Another interesting feature is that since 1928 there has been no epidemic attributed to pasteurized milk, while in the same period raw milk has been responsible for many epidemics. At the present time, there is a small typhoid epidemic (now under control) in one Quebec village and the epidemiological investigation has revealed that it is attributable to contaminated raw milk.

During the last 30 years the number of pasteurizing plants has increased enormously. In 1915 only a few pasteurizing plants existed, in 1939 there were 88, and to-day 138 are in operation. It is the intention of many dealers to change to pasteurized milk and to build plants as soon as construction is possible.

In Montreal, the first milk by-law dates back to 1890. By 1900 two veterinarians were employed in milk inspection. The first bacteriological analysis of milk was made in 1904. The first pasteurization plant in Montreal—and, incidentally, the whole province—was opened in 1907. Shortly after that, another was opened by one of the large dairies. The price of ordinary raw milk was, at that time, 8 cents a quart, but shortly after the introduction of pasteurization, the price for pasteurized milk was raised to 10 cents a quart. It can be readily understood that, with this increase in price, the sale of pasteurized milk progressed very slowly, so that in 1912 only a little over 30 per cent of the milk was pasteurized.

In 1912, with the appointment of a superintendent in the Division of Food Inspection (Dr. A. J. G. Hood), a revision and improvement of the draft of a milk and cream by-law, started some time before, was carried out. Dr. S. Boucher, who was appointed director of the Montreal Department of Health in 1915, favoured the adoption of a revised and completed by-law which would require the pasteurization of all the milk sold in the city. In 1918, a revised by-law was submitted to the City Council but, owing to very great opposition on the part of the small milk dealers, one large company, and numerous medical men, this by-law was rejected.

By 1920, 55 per cent of all the milk sold was pasteurized, being processed in 20 plants under the supervision of only one milk inspector. Unpasteurized milk was being sold by 440 other milk dealers, while milk from cans and bottles was being sold by 3,000 grocers and restaurant keepers. Needless to say, most of these were opposed to any by-law concerning pasteurization.

At this time it was decided that an intensive publicity campaign must be undertaken, utilizing the press, scientific reviews, conferences, public meetings, etc. This program was continued until 1925, when a revised draft of our milk by-law was submitted once more to the Executive Committee and to the City Council. In this draft, pasteurization was not required for all milk but only for that which did not meet the requirements of what was to be known as "special (raw) milk." In spite of considerable opposition, this revised draft was accepted and passed by the City Council in July 1925. Peculiarly enough,



practically all the small dealers who had voted against the draft by-law in 1918 came as a delegation and requested the City Council to adopt this milk by-law.

By 1925 we had succeeded in obtaining the appointment of five dairy inspectors for farm inspection and five milk inspectors to supervise the sale of milk by the 500 milk dealers, 3,000 grocers, and numerous farmers on the public markets, and one inspector to look after the proper pasteurization of milk and cream in the 34 plants situated inside and outside the city limits.

Following the epidemic of typhoid fever in 1927, the authorities realized the necessity of having more and better qualified inspectors to supervise the dairy farms and the pasteurizing plants. They also realized that, in order to control these operations, more bacteriological samples would have to be collected and submitted to the laboratory for analysis. This necessitated the appointment of additional personnel for the laboratory.

In 1938, Section No. 1 of the Division of Food Inspection consisted of three sub-branches, with a total of 23 inspectors; 9 veterinarians being responsible for the inspection of milk in the country, 7 inspectors for the inspection of milk in the city, and 7 inspectors for the control of pasteurization.

In 1939 the Municipal Board of Health appointed a special committee\* to three members to study the milk situation in Montreal. In February of that year a report was submitted, suggesting a reorganization of this Section. The recommendations were later put into effect.

At present, Section No. 1 of the Milk Inspection Branch in the Division of Food Control is divided into two branches, each under the direction of a chief inspector and responsible for (a) milk inspection on farms and (b) milk inspection in the city. Thus this section, with thirty inspectors, supervises the production and delivery of milk in minute detail from the cow to the consumer.

*Milk Inspection on Farms.* A staff of 13 veterinarians supervise the sanitation of milking and milk production on the farms of 4,869 producers who ship milk or cream to Montreal. The territory is divided into 10 rural districts. The inspectors are responsible for the supervision of the health of the herds, including control of mastitis and Bang's disease (the tuberculin testing being done by Federal inspectors); carrying out of inquiries in the case of contagious diseases; inspection of stables, dairies, equipment and surroundings, making of score-cards (28 points out of 100 being allowed for farm buildings and 72 points for methods and conditions); supervision at milking time; collection of samples for laboratory analysis; checking layout of existing buildings on farms; inspection of ice and water supplies to be sure that they are safe for cattle and other uses; inspection of milk transport trucks; and education of producers. In 1944, a total of 14,290 inspections was made.

*Milk Inspection in the City.* In the city there are 17 sanitary inspectors (including a chief inspector), 14 of whom hold the *Certificate in Sanitary Inspection (Canada)* granted by the Canadian Public Health Association. A

\*This committee was composed of Dr. Grant Fleming, Dr. E. G. Asselin, and Dr. Ad. Groulx

group of seven inspectors supervise the handling and transportation of milk from its arrival by railway or truck until it is delivered to the consumers. This applies to milk and all its by-products: ice cream, cheese, butter, skim milk, and yoghurt. The inspectors are responsible for general inspections of establishments and of vehicles for transport and delivery; special inspections and investigation of complaints; control of the quality of milk including lactose fermentation tests upon reception, temperature control upon arrival and delivery, examination of milk for cleanliness, appearance, taste and smell; supervision of all products received and sold; collection of samples for chemical analysis—during delivery, in stores, schools and other places; checking on permits and licences to sell; control of health cards for milk handlers; control of milk and its conditions of sale in stores, restaurants, hotels, hospitals, nurseries, schools, etc.

At 8,208 places where milk is handled, a total of 14,709 inspections was made in 1944, and 1,240 wagons and trucks were supervised. Samples, totalling 16,838, of milk and its by-products were taken for chemical and bacteriological analysis, and 178,341 laboratory tests were made.

A group of 9 inspectors regularly inspects the 23 pasteurizing plants and the 21 dairies (against 30 in 1944) where special milk (unpasteurized) is sold. The inspection of pasteurizing plants includes all operations—washing and sterilizing of apparatus and equipment, and the verification of recording thermometers. The inspectors are also concerned with the quality of milk and cream received, the sanitary conditions of the plant and the equipment, and the taking of samples for the resazurin and other tests. Similar inspections are made in raw-milk establishments. Inspectors are also present during milking to supervise cleanliness, the sterilization of utensils, and bacteriological control. This bacteriological-control service is extended to children's hospitals, general hospitals, military depots, etc.

#### RESULTS OF PASTEURIZATION IN MONTREAL

During 1944, Greater Montreal consumed daily 104,758 gallons of milk. The milk sold is of good quality and comes from 100 per cent tuberculin-tested herds. At the present time 98.17 per cent of the milk supply is pasteurized, the remaining 1.83 per cent representing special (raw) milk. The milk by-law is generally well observed, but could be more strictly enforced with an increase of staff.

The mortality due to certain milk-borne disease has greatly declined. The importance of a clean and pasteurized milk supply is demonstrated by the following figures:

1. The infant mortality has declined from 183.0 per 1,000 live births for the five-year period 1915-1919 to 69.1 in 1944.
2. The mortality from diarrhoea among babies 0-1 year has dropped from 64.4 per 1,000 live births in the five-year period 1920-24 to 9.2 in 1944.
3. The death rate attributable to non-pulmonary tuberculosis has dropped from 37.3 per 100,000 population for the five-year period 1915-1919 to 8.0 in 1944.
4. Since 1927 no case of typhoid fever in Montreal has been ascribed to pasteurized milk.

Typhoid fever and paratyphoid fevers no longer constitute a problem in our city. There has also been a decrease in brucellosis. Pasteurization is

perhaps not the only factor in the decrease in infant mortality, the mortality from diarrhoea among babies under two years of age, the mortality from other enteric diseases and from non-pulmonary tuberculosis; it is, however, the chief factor, milk being the principal food of the child.

The present organization of the milk inspection services in Montreal compares favourably, I believe, with that of other large cities throughout the world and has been found by foreign experts to be most efficient.

#### PRINCIPLES AND CONDITIONS OF PASTEURIZATION

When speaking of pasteurization, one should never forget that constant supervision of the production and distribution of milk is also essential. The milk should be from healthy herds and should be carefully handled. Pasteurization will improve the quality of good clean milk, but will not improve insanitary milk. Hence strict supervision of the whole milk supply, from milking to pasteurization and distribution to the consumer, is necessary, with laboratory control through chemical and bacteriological analysis. The following points must be considered essential.

1. Inspection of the dairy farms, with supervision of milking.
2. Tuberculin testing of herds.
3. Supervision of health amongst milk handlers.
4. Supervision of the water supply.
5. Control of transportation conditions from farm to dairy.
6. Control of the quality and cleanliness of milk by suitable tests on its arrival at the dairy.
7. Supervision of distribution to consumers by laboratory analysis of street samples.
8. Adequate supervision of the pasteurization plant.
9. Chemical and bacteriological analyses.
10. In addition to the rigorous application of a by-law there must also be a continuous campaign to educate the public as well as those engaged in the milk and cream business: producers, farmers, shippers, merchants, and milk handlers.

The Board of Health of the City of Montreal, in its report of February 6, 1939, recommended that the municipal authorities take action "to render pasteurization compulsory for all the milk and its by-products sold in Montreal and to modify the milk by-law accordingly." Through the medium of education we shall ultimately reach this goal. In fact, the proportion of pasteurized milk, which was 97.0 per cent in 1939, has increased to 98.17 per cent in 1945; and the number of raw-milk dairies has decreased from 30 in 1944 to 21 in 1945.

Much, however, remains to be done. As I have already mentioned, in a public lecture on a national health program delivered in Toronto in 1942 under the auspices of the Health League of Canada:

"Pasteurization of milk should be generalized. Raw milk and its products still remain the cause of too many infections—tuberculosis, typhoid fever, undulant fever, and a considerable amount of infant mortality. The results obtained where pasteurization of milk has been enforced are proof of its value."

## OBSERVATIONS ON THE CALCIUM CONTENT OF COW'S MILK

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IN an investigation of the difference between analytically determined and calculated calcium contents of a series of different meals (1) it was found that the actual calcium content was below the value obtained by calculation from the use of several tables of food composition. Since milk is the chief source of calcium in average Canadian diets, it seemed advisable to determine the calcium content of samples of milk as commercially available in Toronto and to conduct a preliminary study of the effects of pasteurization and of the variation in milk from different herds.

### METHOD

Milk samples were thoroughly mixed and 50 gram aliquots were weighed into porcelain evaporating dishes. These aliquots were dried overnight in an air oven at 105°C. The dry residue was carefully ashed and calcium determined by the oxalate-titration procedure described by the Association of Official Agricultural Chemists (2). Results were calculated as milligrams of calcium per 100 grams of milk. Triplicate determinations were made on each sample. Reported results are averages of the triplicates.

### RESULTS

Ten samples of milk purchased on different days from a delivery truck of a large Toronto dairy were analyzed to determine the variation likely to occur in milk from a single dairy. The results were as follows:—

DATE OF SAMPLE	CALCIUM CONTENT mg. per 100 g.
Nov. 24, 1943.....	95.5
Dec. 17, 1943.....	98.8
Jan. 7, 1944.....	100.2
Jan. 8, 1944.....	100.8
Jan. 10, 1944.....	100.2
Jan. 11, 1944.....	100.2
Jan. 12, 1944.....	99.0
Jan. 13, 1944.....	99.6
Jan. 14, 1944.....	102.5
Jan. 15, 1944.....	101.0
Average.....	99.8
Standard Deviation.....	1.8

The variation of individual samples in this series is small and it can be said that the calcium content of milk from this particular dairy during this interval was fairly uniform. It should be noted that all of these samples were pasteurized, homogenized milk of standard fat content.

To determine the variation in calcium content of milk from different dairies, 3 samples were obtained by retail purchase from each of 9 dairies, the sets of samples being secured on different days. These samples were pasteurized milk but only a few were homogenized. The results of these determinations were as follows:—

DAIRY NUMBER	CALCIUM CONTENT, mg. per 100 g.		
	Sample 1 17/11/43	Sample 2 17/12/43	Sample 3 3/6/44
1.....	102.7	102.5	101.1
2.....	95.5	98.8	100.1
3.....	106.5	102.4	102.0
4.....	96.6	96.6	88.6
5.....	98.0	101.0	104.6
6.....	106.0	102.4	100.0
7.....	103.2	117.9	102.8
8.....	95.7	102.5	101.1
9.....	101.7	96.6	103.7
Average.....	100.7	102.3	100.4
Standard Deviation..	4.3	6.4	4.7
Overall Average.....			101.1

It will be noted that there is some difference between samples from different dairies and considerable difference, in some cases, between samples from the same dairy. The mean of the first set of samples is 100.7, of the second set 102.3, and of the third 100.4. The calcium content of milk given in most tables of food composition is 120 mg. per 100 cc. Only one sample in the above list contained approximately that amount. The discrepancy between the actual content of calcium in practically all of the samples analyzed and the amount given in food tables partially explains the difference between actual and calculated values for a series of meals (1).

A few samples of Jersey and Guernsey milk, with high-fat content, gave results indicating a greater calcium content than ordinary milk. It seemed advisable to determine whether this might be the case. Samples of high-fat milk and of "ordinary" milk were obtained from each of 9 dairies. Results were as follows:—

DAIRY NUMBER	TYPE OF MILK	BUTTERFAT per cent.	CALCIUM mg. per 100 g.
1	Jersey	4.80	105.5
2	"	4.55	119.5
3	"	4.75	125.0
4	Guernsey	4.30	109.0
5	Jersey	5.75	115.0
6	"	4.80	112.0
7	"	4.95	118.5
8	"	4.50	104.5
9	"	3.55	126.3
Average.....		4.66	115.0
Standard Deviation.....			8.1
1	Plain	3.30	101.0
2	"	3.20	100.1
3	"	3.10	102.0
4	"	3.40	88.6
5	"	4.80	104.6
6	"	3.20	100.0
7	"	3.30	102.8
8	"	3.30	101.0
9	"	3.25	103.7
Average.....		3.43	100.4
Standard Deviation.....			4.7
Overall Average.....		4.04	107.7

The average calcium content of high-fat milks was greater than that of "ordinary" milks but still below the generally accepted figure of 120 mg. per cent. However, no correlation was apparent between the butterfat and calcium levels in the series.

Because the actual calcium values in practically all cases were below expectation, it seemed advisable to determine whether the calcium content had been reduced by pasteurization or whether it was initially low in raw milk. Through the cooperation of a Toronto dairy it was possible to obtain samples from six lots of milk before and after pasteurization. The results are given below:—

	CALCIUM CONTENT, mg. per cent.	
	Individual Samples	Average
Raw Milk.....	109.5, 112.5, 109.2, 111.0, 111.0, 105.5	109.8
Pasteurized Milk....	109.2, 112.1, 109.5, 112.5, 112.1, 111.0	111.1

These results are preliminary only and additional samples should be secured from other dairies. However, in these six lots of milk, pasteurization had had no effect on the calcium content and it should be observed that the content of raw milk is less than the amount ordinarily cited. It was possible to obtain samples of raw milk from 13 farms in various sections of Southern Ontario. The results of calcium determinations on these samples were as follows:—

FARM NUMBER	AREA	CALCIUM CONTENT OF MILK mg. per 100 g.
1	Uxbridge	99.2
2	Brampton	102.1
3	Unionville	101.0
4	Palermo	90.0
5	Woodbridge	104.4
6	Milverton	98.2
7	Stratford	105.4
8	Grafton	92.8
9	Port Perry	109.2
10	Aldershot	123.4
11	Georgetown	105.3
12	Gormley	100.5
13	Toronto	103.7
Average.....		102.7
Standard Deviation.....		8.2

The wide variation in these samples from 13 farms is clearly evident. Only one sample had a calcium content approximately equal to that given in standard tables of food composition. No information is available from the present study to indicate the reason for the variation, or for the apparently low value. It should be realized that the calcium content of milk is of great importance in human nutrition; obviously this subject needs further investigation.

The means of the various types of samples are worth consideration. They were as follows:—

SAMPLE	MEANS OF CALCIUM CONTENT	STANDARD DEVIATION OF MEAN
10 samples, same dairy.....	99.8	1.8
9 samples, different dairies (1st series).....	100.7	4.3
9 samples, different dairies (2nd series).....	102.3	6.4
9 samples, different dairies (3rd series).....	100.4	4.7
13 samples, different farms.....	102.7	8.2

These values are closely similar. They provide evidence that the average value for milk coming from widely separated farms is approximately the same as for pasteurized milk on sale in Toronto, and that all the average values for calcium are about 20 per cent below that given ordinarily in tables of food composition. Pasteurization is apparently not the reason for this discrepancy since it holds for raw milk.

#### SUMMARY

The calcium contents of milk samples from a large Toronto dairy, secured from time to time during two months, were found to be fairly similar and to be about 20 per cent less than the amount cited in standard tables of food composition. Some variation was found between samples from different dairies and from different farms. Analyses of samples before and after pasteurization indicate that pasteurization is not responsible for the low values found. Samples from 13 farms in various sections of Southern Ontario gave results which show that the calcium content of milk in Ontario is probably 20 per cent less than the value commonly cited. It would appear that either milk available in the Toronto area has a subnormal calcium content or that the calcium content given for milk in most food tables is erroneous.

This investigation was carried out under the auspices of the Committee on Food Analyses of the Canadian Council on Nutrition.

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# COMPOSITION OF COMMERCIAL ICE CREAM

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**I**NFORMATION regarding the composition and the nutritive value of commercial ice cream does not appear to be readily available in Canada. Since ice cream is a food used with some frequency, it seemed advisable to study the composition of samples of the product as it is available for sale to the general public.

## METHODS

Fourteen samples were secured from five Ontario cities (Toronto, Ottawa, Orillia, Windsor, and Kingston). Each sample was from a different manufacturer and in each case the sample consisted of four one-pint bricks, except sample N-T, which was of ice-cream mix.

Analyses were made on each sample for amounts of the following nutrients: protein, fat, carbohydrate, calcium, vitamin A, thiamine, riboflavin. The analytical procedures employed may be described briefly in the following way:

Protein, fat, and carbohydrate: methods given as official by the Association of Official Agricultural Chemists.

Calcium: a micro-procedure described by the Association of Official Agricultural Chemists.

Vitamin A: a modification of an antimony trichloride procedure described by Oser, Melnick and Pades.

Thiamine: a modification of the Schultz, Atkin and Frey yeast fermentation method.

Riboflavin: a modification of the Snell and Strong microbiological method.

## RESULTS

The accompanying table contains the analytical results.

AMOUNTS OF VARIOUS NUTRIENTS IN SAMPLES OF COMMERCIAL ICE CREAM

Sample	Vitamin A International units per 100 g.	Calcium Milligrams per 100 g.	Thiamine Micrograms per 100 g.	Riboflavin Micrograms per 100 g.	Protein per cent	Fat per cent	Carbohydrate Total per cent
A-T	500	150	70	250	4.7	10.7	17.8
B-T	500	180	65	200	4.7	10.7	16.5
C-T	600	150	70	200	5.1	10.8	18.0
D-T	500	130	55	200	5.0	10.5	20.5
E-T	500	160	55	250	5.0	10.2	17.3
F-OT	400	145	70	300	4.9	10.0	18.1
G-OT	400	170	60	200	5.6	10.0	16.0
H-OR	400	130	70	300	5.4	10.6	15.5
I-W	700	145	50	250	4.9	11.0	18.4
J-W	800	165	70	250	4.5	9.8	16.2
K-W	800	160	50	300	5.4	10.4	21.2
L-K	400	130	60	300	4.8	10.1	15.9
M-T	400	130	75	200	5.1	10.1	17.9
N-T	400	155	85	200	4.8	10.0	17.2

The data may be summarized as follows:

Nutrient	Range	Average
Protein (p.c.).....	4.5 - 5.6	5.0
Fat (p.c.).....	9.8 - 10.8	10.3
Carbohydrate (p.c.).....	15.5 - 21.2	17.6
Calcium (mg. per 100 g.).....	130 - 180	150
Vitamin A (I.U. per 100 g.).....	400 - 800	520
Thiamine (mcg. per 100 g.).....	50 - 85	65
Riboflavin (m. g. per 100 g.).....	200 - 300	240

### DISCUSSION

The analytical results show considerable uniformity. This is true particularly of protein, fat and calcium. It should be appreciated that procedures for the determination of these three nutrients, and for carbohydrate, have fair precision. On the other hand, procedures for the estimation of the vitamins do not possess much precision, especially when the vitamins are present in a sample in low concentration. It is probable that the variation in vitamin values is within the limits of experimental error. It could be said that the fourteen samples of ice cream had a more uniform composition than might be anticipated. It is interesting to compare the average values found in this study with those given in a recent table of food composition issued by the U.S. National Research Council.

Nutrient	U.S.N.R.C.	This Study
Protein (p.c.).....	3.9	5.0
Fat (p.c.).....	13.0	10.3
Carbohydrate (p.c.).....	20.0	17.6
Calcium (mg. per 100 g.).....	80	150
Vitamin A (I.U. per 100 g.).....	330	520
Thiamine (mcg. per 100 g.).....	30	65
Riboflavin (mcg. per 100 g.).....	260	240

There are three differences between the two sets of figures to which attention should be drawn. Values found for calcium and for thiamine in this study are about twice as great as those in the U.S. table. The average value found for vitamin A in Canadian samples is much greater than that reported in the American table. Differences for other nutrients are insignificant.

### SUMMARY

The amounts of protein, fat, carbohydrate, calcium, vitamin A, thiamine, and riboflavin in fourteen samples of commercial ice cream from five Ontario cities have been determined.

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## SAFEGUARDING CHEESE

AN effort to prevent outbreaks of typhoid fever and other enteric infections resulting from the use of freshly prepared cheddar and hard-pressed cheeses, the Federal Government passed legislation in April 1945 requiring an adequate period of storage of these products before their distribution. Since becoming effective last July, the regulations have proved to be practical and have been made effective through the hearty co-operation of cheese manufacturers throughout Canada. The legislation provides that:

"(1) Every manufacturer of cheese made by the Cheddar or other process from raw or pasteurized milk that yields a hard-pressed cheese shall mark or brand within twenty-four hours after removal from the press every merchandising unit of such cheese correctly and distinctly with the date of manufacture, indicating the day, month and year when such cheese was put into press.

"(ii) No person shall cut any Cheddar cheese or other hard-pressed cheese made from raw or pasteurized milk for sale for consumption as such in Canada within a maturing period of ninety days from the date of manufacture. Throughout the first ten days of the said maturing period of ninety days the temperature of storage shall be maintained at not less than fifty-eight degrees Fahrenheit and throughout the remainder of the period, at not less than forty-five degrees Fahrenheit.

"(iii) No person shall within the said maturing period of ninety days from the date of manufacture offer for sale or sell or distribute, for consumption as such, any Cheddar cheese or other hard-pressed cheese made from raw or pasteurized milk unless the cheese as such has been effectively pasteurized: Provided that a Cheddar or other hard-pressed made from raw or pasteurized milk may be sold, offered for sale or distributed within the said maturing period of ninety days from the date of manufacture to a manufacturer for use as an ingredient of any food product if the manufacturer so conducts his operations that the cheese will be effectively pasteurized."

The passing of these regulations is gratifying to all public health workers, and particularly to the several groups of investigators and administrative officers whose studies and efforts were largely responsible for this important legislation.

During the past thirteen years, several outbreaks of typhoid fever in Canada have been traced to Cheddar or other hard-pressed cheeses. Practically all of

these recorded outbreaks have occurred in the four provinces in which cheese is produced on a large scale—Alberta, Manitoba, Ontario, and Quebec. In each instance the cheese had been used within a short time of its preparation. Dolman<sup>1</sup> reported that during the eight-year period 1932-39 there were no fewer than 6 known cheese-borne outbreaks in Canada, involving 760 persons and 71 deaths. In all cases the cheese was of Cheddar type and was made from raw milk. In Alberta, statistical records of the Provincial Department of Health show that between January 1, 1936, and September 30, 1944, 507 cases of typhoid fever were reported, of which 111 were directly traceable to the consumption of infected cheddar cheese.<sup>2</sup> During this period the province had three distinct cheese-borne outbreaks—the first in 1936, the second in 1938, and the third in 1944; and it was considered that during these years at least 20 per cent of all typhoid in the province was directly attributable to infected cheese. Of the 111 cases, 11 were fatal. In the 1944 outbreak, 83 cases were reported, with 7 deaths.

During the period from December 1939 to March 1940 three outbreaks apparently due to cheese occurred in the province of Manitoba.<sup>3</sup> In the fall of 1941, three municipalities in the Province of Quebec experienced an epidemic of typhoid fever which was traced to contaminated Cheddar cheese. Forty cases were reported, with 6 deaths.<sup>4</sup> In 1944 a Cheddar cheese manufactured in a small town in the same province was responsible for 29 cases of typhoid fever, with 2 deaths.<sup>5</sup>

The 1944 outbreak in Alberta was the subject of a very complete study<sup>2</sup> and focused attention on the necessity for legislative action. Dr. M. R. Bow, Deputy Minister of Health of the Province, with representatives of the Department of Agriculture and of the cheese manufacturers, drafted legislation which was passed by the Provincial Government. Thus Alberta was the first Province in Canada to take effective steps to deal with this problem. During the past few years legislation governing the storage period of cheese has also been enacted in several States of the U.S.A., including California and New York. Provincial or State legislation concerning cheese can, however, be only of limited value because of interprovincial and interstate trade, and it is a source of great satisfaction that in Canada the Federal Government has made effective the efforts of the Province of Alberta and has met the desire of all the Provincial Departments of Health, in requiring an adequate storage period for this food product.

In the passing of this legislation the work of laboratory personnel who studied the length of time in which typhoid bacilli would survive in cheese under various conditions of storage must be remembered. Two laboratory studies were published in this *Journal*—one recording the observations of Ranta and Dolman<sup>6</sup> in the Western Division of the Connaught Laboratories at the University of British Columbia and the other presenting the findings of Campbell and Gibbard<sup>7</sup> in the Laboratory of Hygiene, Ottawa.

The Canadian Public Health Association is pleased, too, that, through the presentation of important laboratory and epidemiological studies, the publication of editorials, discussion at annual meetings, and the presentation of resolutions urging control by legislation, it has been able to make a contribution to the efforts to prevent further outbreaks of cheese-borne enteric infections.

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DR. R. P. VIVIAN AND THE NEW DEPARTMENT OF HEALTH  
AND SOCIAL MEDICINE

ON THE foundations so well laid by the late Dr. Grant Fleming in the Department of Public Health and Preventive Medicine at McGill University, Dr. R. P. Vivian, who has just retired as Minister of Health in the Province of Ontario, is establishing the Department of Health and Social Medicine. In its development Dr. Vivian is being assisted by Dr. C. W. MacMillan, formerly Chief Medical Officer of New Brunswick.

The new title of the department is suggestive: it brings prominently into the Faculty of Medicine, and relates to it, all that is implied by the term "social medicine". There is general agreement among those concerned with medical education that an increasingly larger place must be given to the the subject of health in order that the practising physician may be in a position to serve as the health adviser in a family and give sound advice in a way in which it will be appreciated and put into practice. There is no question, either, but that the practising physician must have an understanding of the fundamental relationships between every member of the community in all matters of health, and that lack of appreciation of social medicine will render his efforts less effective, not only in the treatment of the individual but also in the control of the condition in the community.

In keeping with the best planning of the medical curriculum, the department will share in the instruction of medical students throughout their course, instead of providing instruction only in one of the senior years. The program is also designed to present a broad picture of social-security schemes, with special emphasis on their relation to the practice of medicine. Further, it is intended to include personnel who will be able to undertake fact-finding surveys and be of assistance in the creation of demonstration units within the community or in selected groups, such as industry.

As Minister of Health for Ontario, Dr. Vivian introduced important, advanced legislation. He has had the satisfaction of seeing a substantial start made in the provision of full-time county health units. Increased support for hospitals

has been provided, the venereal-disease control program has been strengthened, and the tuberculosis control program, in which Ontario has made signal progress, has been carried forward. Dr. Vivian has also advanced the provisions for the diagnosis and treatment of cancer, and through the Ontario Cancer Treatment and Research Foundation has encouraged the establishing of research work in the several universities and hospital centres in Ontario.

To Dr. Vivian and to his new department in McGill University, the Association extends its warmest good wishes.

#### HEALTH AND WELFARE APPOINTMENTS IN ONTARIO

**F**OLLOWING the resignation of the Honourable R. P. Vivian, M.D., as Minister of Health and Welfare of Ontario, announcement was made early this month of the appointment of Mr. Russell T. Kelley as Minister of Health and of Mr. William Arthur Goodfellow as Minister of Welfare. Health and Welfare will, therefore, now be represented in the Cabinet by two members, which is further evidence of the increasing responsibilities and importance of these fields in the Government's program.

During the war years, Mr. Kelley, who has been prominent in business in Hamilton, Ontario, gave generously of his time to the work of the Canadian Red Cross Society, and under his leadership the campaign for blood donors in his own city was an outstanding success. He has strongly supported the plans of the Red Cross Society to provide, with the co-operation of the Federal and Provincial authorities, a national blood-donor plan which would furnish, without charge, blood transfusions and dried blood plasma for every case requiring treatment. The need for such provision is evident from a survey which has been made of the existing provisions for transfusions in hospitals throughout Canada. Only in the large hospitals is adequate provision made; in almost all the small hospitals no blood service whatever is available.

## PUBLIC HEALTH EDUCATION

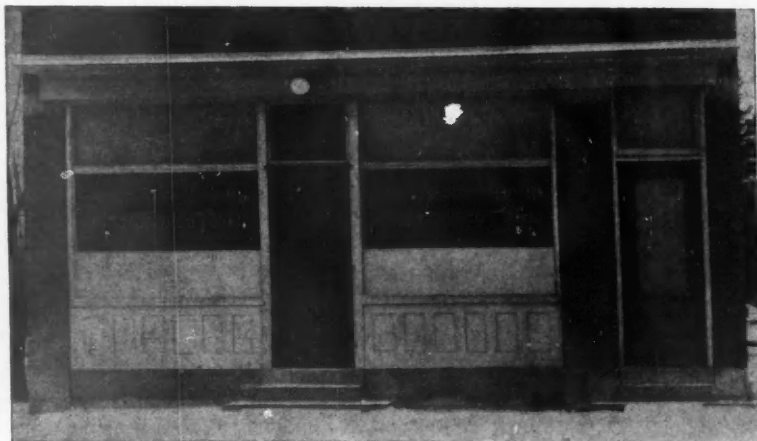
### A Township Public Health Centre in Ontario

**A**NTICIPATING the trend of a changing public health program in Ontario, and conscious of the necessity of enlarging and broadening the plan of public and community health protection, the Local Board of Health of the Township of North York—an area adjacent to the northern municipal boundary of Toronto and with a population of 25,168—created and opened a Public Health Centre at 5248 Yonge Street, Willowdale, Ontario on April 29, 1943.

Since the formation of the Township in 1922, the statutory duties of a town-

alternate years for diphtheria, whooping cough, and smallpox. Each autumn, by means of the Vollmer Patch Test, all beginners at the collegiate are examined for tuberculosis. Positive and doubtful reactors are given a free chest X-ray examination to determine the presence or absence of active pulmonary tuberculosis.

At convenient locations, the Department has established eight child health centres, at which 9 monthly conferences are held. In 1944 there were sixty-nine such conferences, with 346 infants



The Township Public Health Centre, Willowdale, Ontario

ship public health department have been carried out. In 1926 a school medical service was established in all elementary schools and in 1944 was extended to include the collegiate institute. During 1944 the school medical officers examined 85 per cent of school beginners and 92 per cent of all grades VII and 90 per cent of all grade 12 and 13 pupils and 89 per cent of the collegiate pupils in grade 10.

Immunization programs for all the schools were first arranged in 1927. They are presently available during

and 287 preschool children present. Mothers of infants born in North York since July 1, 1944, have received from the Medical Officer of Health a letter urging them to give serious consideration to the immunization of their infants in order to afford them every protection against communicable diseases. At regular intervals, our public health nurses make home visits to all newborn infants, while by arrangement with the health department the Township branch of the Victorian Order of Nurses does most of the pre-natal vis-



iting. According to the municipal Registrar, there has not been a maternal death in this municipality since its formation in 1922.

In January 1939 a municipal vote was taken on the establishment of dental clinics in five of the larger schools. The proposal carried with a tremendous majority and on April 3, 1939, five dental clinics were opened, with a part-time dentist working four half days each week. May 1, 1940 the dentist worked six ( $\frac{1}{2}$  days) weekly increasing to eight ( $\frac{1}{2}$  days) on May 1, 1944. Up to December 31, 1944, our tractions and 10,897 other procedures for 16,294 pupils.

Knowing the great advantages to the child from drinking pasteurized whole milk daily, the Board of Health instituted milk-drinking in five schools with the hope that the habit, having been well-established in the school, would "carry over" to the household. Each child was given a weight record card on which the teacher was asked to record the child's weight each month, and it was interesting to watch this weight curve gradually climb. The milk was purchased by the pupils for three cents a half-pint, to be drunk during a specified class hour so that the most benefit might be obtained. In eight months, 128,360 half-pints of milk were consumed by 6,418 pupils.

It is difficult to determine the value of health education, but every possible opportunity is taken to promote it. The public health centre serves as a

focal point for this educational work, which is accomplished by: home visiting; pupils' physical and special examinations; pre-natal visiting; letters to mothers; circular letters to all school principals; various surveys (weight, vision, etc.); pre-immunization talks; addresses at Home and School Association meetings; child health conferences; posters in all the schools; classroom inspections; newspaper articles; eight "Health Topic Talks" monthly in three local newspapers; the establishment of a health library at the Public Health Centre; distribution of health literature from the library; distribution eight times yearly to three Home and School Associations of the six health pamphlets featured each month.

Citizens are invited to call at the Public Health Centre to receive health pamphlets. There are now 163 titles in the library and each month we feature six of the best that are applicable to our monthly health project. During 1944 we received 7,209 copies of pamphlets, bulletins etc., and distributed 6,413.

Anyone interested in the establishment and operation of a public health centre similar to the one in the Township of North York is invited to visit and inspect the Centre. Any reader who may be interested in a fuller report of the activities of the health department may write for a copy of "A Review of the 1944 Report."—*Carl E. Hill, M.D., Medical Officer of Health, North York Township, Ontario.*

#### National Immunization Week

NATIONAL Immunization Week was observed this year from September 30th to October 6th. This was the third such national campaign. The week was sponsored by the Health League of Canada in co-operation with provincial and municipal health departments throughout Canada.

The campaign was opened with a message from the Honourable Brooke Claxton, Minister of National Health and Welfare, in the form of a movie clip which was shown in all Canadian theatres and prepared in

French and English. The same message was released by the Canadian Press to all Canadian newspapers. It read as follows:

"Conservation of child health is of vital importance to the future of Canada. Since the beginning of the war, 200,000 Canadian children have been stricken with diphtheria, whooping cough and scarlet fever, and 4,000 children have died. All these cases could have been easily prevented. Advances in modern preventive medicine have given a definite, safe, easy and economical means of prevention. That means is vaccination and

innoculation. Health departments throughout the country unite with the Health League of Canada during National Immunization Week to call to public attention, particularly parents, the importance of protecting children against these preventable diseases. Every child should be protected against smallpox, diphtheria, whooping cough and scarlet fever before his first birthday. Parents of Canada—won't you contribute to the conservation of child health? Take them to your doctor or to the hospital clinic or to the public health authorities. Adopt these special measures which medical science has provided to prevent these diseases. Your child cannot protect himself. YOU must do it for him."

From the National Head Office of the League, news releases, editorial material and other data were furnished to 500 daily and weekly newspapers in French and English. Well in advance of the campaign, information was supplied to some fifty magazines, journals and other publications. The response was outstanding and in addition to special articles and editorials in such popular magazines as *Maclean's*, *Liberty*, *Canadian Home Journal*, *Chatelaine* and others, the leading medical, nursing and school journals gave generous support to the effort. One result has been that thousands of clippings have reached the office from all over Canada, indicating that the press carried stories of the campaign and the importance of impressing the public with the need for action to all corners of the Dominion.

Three sponsored advertisements were offered through the Canadian Daily Newspapers Association to eighty dailies across Canada. These advertisements were prepared by the League and mats were supplied to newspapers on request. It is estimated that about 100,000 lines of advertising was utilized. In addition, many firms gave space in their regular commercial advertising, making use of suggested "box" statements which were supplied by the League.

Posters, leaflets, window-cards, car stickers, etc., were printed and distributed in most of the provinces. It is estimated that 10,000 posters and 25,000 leaflets were distributed through the League alone. Street-car cards are exhibited continuously in buses and cars in the larger cities across Canada.

Radio stations were supplied with "spot" announcements in French and English, and

these were freely used. Popular radio programs sponsored by commercial firms, such as Treasure Trail, Fibber McGee & Molly, Canadian Round-up, and others, gave generous support. In some provinces, special radio programs were arranged and a number of health officers and public health officials delivered messages.

In addition, Departments of Education, Home and School Associations, Women's Institutes and other organizations were urged to assist in the campaign.

All of these activities were supplemented by the activities of local and provincial health departments. In a report received from the Province of Saskatchewan it is stated:

"One cannot speak of the degree of co-operation which existed in other provinces, but in Saskatchewan full advantage was taken of the initiative and enterprise of the Health League. A continuous educational program was given new impetus and vigor by the activities of National Immunization Week. People who read about prevention in national magazines and in their favorite newspapers, and who had seen the film clip in their local movie houses, were now approached through a variety of other media. In Saskatchewan the educational week was planned by the Division of Health Education in collaboration with the Division of Communicable Disease, and with the good-will of the Department of Education. . . .

"It is too early for any attempt to measure the possible results of such an intensive program, interlocking as it was with the national activities of the Health League of Canada. The educational effort must, of course, be maintained throughout the year, and National Immunization Week has served only to bring the subject of prevention to the mind of many people. For many it served not so much to give information that was previously lacking as a needed spur to overcome procrastination and induce them to do what they had intended to do all along but never got around to doing. It is estimated that not less than half of the population of Saskatchewan may have been reached by some of the publicity. Perhaps results will be reflected in continued decrease in the incidence of preventable communicable diseases."

—Mabel Ferris, Assistant to the General Director, The Health League of Canada, Toronto.

# News

## "Health Week"—February 3rd

THE week of February 3rd has been designated "Health Week" by the Health League of Canada—an observance dedicated to national, community, and personal health. It is designed not only to draw attention to benefits which can be derived from good health, but also to point out that sickness, much of it preventable, is costing Canada, directly and indirectly, an estimated billion dollars annually.

In promoting "Health Week" the League is seeking to draw the attention of all citizens to methods of disease prevention advocated by the various official health departments. The League is also enlisting the co-operation of churches, schools and affiliated organizations, service clubs and other public-spirited organizations in observance of the week.

An outstanding feature of the "Week" will be the third annual "National Social Hygiene Day" which falls on Wednesday, February 6. This "Day" will mark the opening of another season's intensive venereal-disease control campaign, and coincides with a similar observance in the United States, sponsored by the American Social Hygiene Association. This year special attention will be paid to the importance of pre-marital examinations, including blood tests. Such examinations at present are compulsory in only two provinces, Alberta and Saskatchewan.

In connection with the observance of National Social Hygiene Day, the Hon. Brooke Claxton, Minister of National Health and Welfare, will deliver an address on the subject of venereal-disease control. Mr. Claxton will speak over the Trans-Canada network of the Canadian Broadcasting Corporation on Sunday, February 3, at 5:03 p.m. E.S.T.

Informative leaflets outlining the "Health Week" program as suggested by the Health League may be obtained from the League's head office, 111 Avenue Road, Toronto 5.

## Appointments in the Department of National Health and Welfare

THE HON. BROOKE CLAXTON, Minister of National Health and Welfare, has announced

the appointment of four chiefs of divisions within the department: Dr. L. V. Janes of Edmonton as chief of the Dental Health Division; Dr. B. D. B. Layton of Toronto, Venereal Disease Control; Dr. R. G. Ratz, of Kitchener, Civil Service Health; and Dr. C. G. Stogdill of Toronto, Mental Health.

A graduate of the Chicago College of Dental Surgery, Dr. Janes served in World War I and later practised in Edmonton. In 1939 he was appointed district dental officer in M.D. 13, later going overseas as officer commanding No. 5 Canadian Dental Company. Since 1942 he has been director of dental services overseas.

Dr. Layton, who succeeds Major George Leclerc as chief of the Venereal Disease Control Division, studied medicine at the University of Toronto and in London, England. He served as resident physician at St. Michael's Hospital, Toronto; as staff physician at the Saint John Tuberculosis Hospital, Saint John, N. B., and as assistant medical director for G. D. Searle and Company, Chicago. He joined the R.C.A. M.C. in 1942 and since 1944 has been Venereal Disease Control Officer for the Canadian Army overseas, having general administrative responsibility for the control program overseas and direct supervision of venereal-disease control in the United Kingdom.

Dr. Ratz, chief of the Civil Service Health Division, graduated from the University of Toronto and practised medicine in Kitchener. During World War I he served in the R.N. V.R. and in World War II as officer commanding the 24th Canadian Light Field Ambulance overseas and later in the Directorate of Medical Services at National headquarters in Ottawa.

A native of Seaforth, Ontario, Dr. Stogdill specialized in psychology and psychiatry at the University of Toronto. Since 1931 he has been director of mental hygiene in the Department of Public Health of the City of Toronto. He recently returned from overseas duty with the medical branch of the R.C.A.F.

## Nutrition Survey to be Undertaken in British Columbia

A NUTRITION SURVEY, designed to help

find those sections of the population in need of improved nutrition will be undertaken in British Columbia during the next six weeks, according to an announcement made on January 3rd by Dr. L. B. Pett, Chief of the Nutrition Division in the Department of National Health and Welfare.

This is the first survey of its kind to be carried out anywhere and is being made under the joint auspices of the Provincial Board of Health and the Federal Department, with the active participation of the Metropolitan Health Unit of Vancouver and of the nutrition services of the B.C. Red Cross Society.

The survey team, headed by Dr. F. W. Hanley, medical officer of the Nutrition Division, Ottawa, includes Miss Ruby White, nutritionist, and two graduate nurses, Misses Edith Perkins and Patricia Macphee.

The survey will combine the newest clinical approach with dietary knowledge and laboratory skills to the study of such medical problems as anaemia. The procedures to be used are based on over two years' study of the best methods employed in Great Britain and the United States and have already been given several preliminary tests in Canada.

This survey of nutrition is representative of the services provided on request by the Federal Department in support of work by provincial public health personnel and medical practitioners. The British Columbia survey will be followed by others in various parts of the Dominion.

#### **Grant to the University of Toronto for Poliomyelitis Research**

THE NATIONAL FOUNDATION for Infantile Paralysis, New York, has made a grant of \$4,538 to the University of Toronto so that research may be continued on the atrophy of denervated muscle. The grant, supplementing \$21,166 previously given to the university for the same purpose, is one of twenty-five totalling \$565,547 recently apportioned by the National Foundation's board of trustees. Funds for all such grants come from contributions to the January 14-31 March of Dimes. The National Foundation receives half of the contributions, the other half being retained by local Foundation chapters for the care and treatment of infantile paralysis victims. Nearly 14,000 persons

were stricken by the disease in the United States in 1945.

The University of Toronto research project is conducted in the Department of Physiological Hygiene under the direction of Dr. D. Y. Solandt. Previous study under the same supervision and auspices has investigated the biophysical aspects of muscle atrophy, fibrillation, and changes in electrical and chemical excitability. Future research under the grant will emphasize the interrelation of these phenomena and possible methods of modifying them.

Since the National Foundation was founded by the late Franklin D. Roosevelt eight years ago to "lead, direct and unify" the fight against poliomyelitis, grants totalling more than \$8,000,000 have been made for education and research.

#### **U.S. Committee on Joint Causes of Death**

UNDER the chairmanship of Dr. Lowell J. Reed, Professor of Biostatistics and Dean of the School of Hygiene and Public Health of the Johns Hopkins University, a subcommittee has been formed under the Joint Committee appointed by the International Institute of Statistics and the Health Organization of the League of Nations. Dr. Halbert L. Dunn, Chief, Vital Statistics Division, Bureau of the Census, Washington, and Dr. Selwyn D. Collins of the United States Public Health Services are secretaries on Statistics on Mortality and Statistics on Morbidity, respectively.

Dr. Percy Stocks, Chief Medical Officer in the office of the Registrar General, and Medical Statistician to the Ministry of Health of Great Britain, will act as consultant to the Committee, and Dr. Yves M. Biraud, Head, Epidemiological Intelligence Service, League of Nations, Geneva, Switzerland, will represent the members of the Joint Committee.

The members from Canada, under the leadership of Mr. J. T. Marshall, Chief, Vital Statistics Branch, Dominion Bureau of Statistics, will be Brigadier J. C. Meakins, Dean of Medicine, McGill University; Dr. F. S. Burke, Director, Blindness Control, Department of National Health and Welfare; and Dr. J. Wyllie, Professor of Preventive Medicine, Queen's University.

The Subcommittee met in Washington for

discussions which were held from December 10th to 12th inclusive. These discussions dealt with the preliminary work in connection with the sixth Revision of the International List of Causes of Death, and methods to be pursued in obtaining unity in the selection of the main cause of death when two or more causes are mentioned on a death registration.

The Subcommittee also considered a draft of a classification of diseases assimilated with the International List of Causes of Death. Such a list when completed would be submitted to the Medical Advisory Committee of each country, and later to the Joint Committee of the 1948 Conference.

As Chairman of the Subcommittee (for the Revision of the International List of Causes of Death) of the Committee on Certification of Causes of Death under the Vital Statistics Section, Dr. Wyllie represented the Canadian Public Health Association.

### Saskatchewan

A DIVISION OF INDUSTRIAL HYGIENE has been added to the Department of Public Health of Saskatchewan. To facilitate this step, the Department of National Health and Welfare has loaned to the provincial department the services of G. W. Rogers, M.A., of the Federal Division of Industrial Hygiene. The Ottawa department has also equipped a laboratory at Regina for Mr. Rogers' use.

\* \* \*

THE DIVISION OF HEALTH EDUCATION took advantage of the 50th anniversary of the discovery of the x-ray by Roentgen to further the interests of cancer and tuberculosis education. Wide advance publicity was given a memorial radio program which was broadcast by six privately-owned broadcasting stations in Saskatchewan on November 4. The script was written by divisional staff and production was in a Regina radio studio.

\* \* \*

THE SASKATCHEWAN DEPARTMENT of Public Health and Education have set up a joint Committee to co-operate with the National Committee for School Health Research. The national committee has been set up by the Canadian and Newfoundland Education Association and the Canadian Public Health Association. Active participation was pledged by the provincial group.

\* \* \*

DR. C. M. HINCKS, general director of the

National Committee for Mental Hygiene, has presented to the Saskatchewan Government a detailed report recommending short-term and long-term steps toward an adequate mental health program. Doctor Hincks, who surveyed the Saskatchewan preventive treatment facilities last spring, recommended construction of a training school for mental defectives, with accommodation for 1,000; construction of a third public mental hospital; a home for the aged to accommodate 300 cases of mental illness; and the development of a 50-bed psychiatric division in the Saskatoon City Hospital.

Establishment of mental hygiene clinics and nursery schools, and parent and teacher education in child development were also suggested.

Doctor Hincks also advised emphasis on psychiatry in professional education of doctors and nurses and said that there was need of one psychiatrist in the Province specially to foster among physicians and health workers a psychosomatic approach to all health problems.

Outpatient care and social service were other recommendations. It was also suggested that the Province should give consideration to eugenical sterilization of those mentally incompetent for parenthood.

\* \* \*

BY OVERWHELMING MAJORITIES, more than 100,000 persons resident in areas of southern Saskatchewan voted in favor of the establishment of two of the Province's proposed 14 health regions. It is stated that the health regions will provide a broader financial basis and offer other advantages for the provision of adequate preventive and treatment services. The regions voted on were Swift Current Health Region No. 1 and Weyburn-Estevan Health Region No. 3.

\* \* \*

THE SASKATCHEWAN DEPARTMENT of Public Health, through its sanitation and health education divisions, is making plans for an intensive restaurant sanitation program. Two-day schools for food handlers are being arranged.

### Manitoba

SINCE JANUARY, 1944, six nutritionists have been appointed by various agencies to conduct nutrition programs within the Pro-

vince of Manitoba. The Regional Nutritionist of the Department of National Health and Welfare, Ottawa, assists in planning all programs, particularly in industrial nutrition. The Provincial Nutrition Consultant and her assistant plan programs for the Province as a whole, and work closely with the provincial Departments of Education and Agriculture. The nutritionist of the City Health Department conducts all programs in Winnipeg, while the Canadian Red Cross Nutritionist promotes better school lunches in rural areas. Co-ordination of the work done by these agencies is achieved by careful planning and regular conferences.

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THE MINISTER OF HEALTH AND PUBLIC WELFARE has appointed a "Venereal Disease Investigation Commission" to succeed the Select Special Committee of the Legislature appointed during the 1945 session. This action was necessitated by the dissolution of the Twenty-first Legislature for the recent provincial elections. The Investigation Commission consists of the Ministers of Health, Education and Public Works, four doctors who are M.L.A.'s, and eight members of the Legislature selected from all parties. The duties of the Commission are "to study and report to the House at the next ensuing session on the measures that could be taken for the control and eradication of venereal disease in the province, and recommend the program that, in the opinion of the Commission, is the most suitable for adoption in Manitoba". The Commission will make every attempt to submit a report to the next session of the Legislature; if it has not done so, its files and duties will be transferred to another Select Committee of the Legislature. The Commission has already met on November 13th and 14th and on December 12th and 13th.

UP TO DECEMBER 1ST, the Registrar for Licensed Practical Nurses interviewed 286 applicants seeking a Practical Nurse's Licence. These applicants show every variety and degree of experience or inexperience, instruction or lack of instruction, and demonstrate conclusively the need for standard qualifications for practical nursing. For those applicants with some organized instruction and experience, a refresher course will be conducted, and those who obtain a satisfac-

tory standing will be granted a license. Other applicants, and all future practical nurses, will be required to take the full course in Practical Nursing, which includes three months' academic experience, 8 months' clinical experience, and one month's holiday. Plans for the course are well under way, and it is hoped that it may begin early in the New Year. Applicants for this course must be 20 years of age and have at least grade 8 education. Interviews and requests for information regarding the course total about 75, including 25 to 30 ex-service personnel.

DR. MAXWELL BOWMAN, Director of Preventive Medical Services, Department of Health and Public Welfare, and Dr. A. E. Deacon, of Winnipeg, were Manitoba representatives at a conference of medical and public health personnel held at the Kenny Institute, Minneapolis, Minn., December 3rd, 4th and 5th. The conference took the form mainly of an intensive demonstration of Sister Kenny's methods in the treatment of residual paralysis in poliomyelitis cases, which both delegates found to be very interesting and instructive.

LT.-COL. M. R. ELLIOTT, M.D., D.P.H., has returned to the Department after six years with the R.C.A.M.C., as Director of the Section of Extension of Health Services. Dr. Elliott's work will be to supervise and co-ordinate the activities of the four bureaus within his section; i.e., Local Health Services, Diagnostic Services, Medical Care, and Hospitalization. Previously Dr. Elliott was provincial epidemiologist and assistant director of Preventive Medical Services.

AMONG AUTUMN VISITORS to the Department were Mrs. Erickson of the North Dakota State Health Planning Committee and Mrs. Marguerite L. Ingram, M.B., specialist in medical care and health studies for the Farm Foundation. Mrs. Erickson and Mrs. Ingram are conducting research on hospitals, medical care, and health plans, based on a standardized survey technique. While in Manitoba they obtained information on various details of the Manitoba Health Plan. (The Farm Foundation is an organization conducting co-operative extension work in agriculture and home economics, with headquarters at Fargo, N.D.)



### **Residence Rule Abolished for Tuberculosis Patients in Ontario and Quebec**

AN AGREEMENT has been reached between Ontario and Quebec which will permit admittance to sanatoria of patients with active tuberculosis without the one year of residence in either Province which previously was required. The expenses of these patients will be borne by their home Province.

In making the announcement last month, the Hon. R. P. Vivian, M.D., then Minister of Health for the Province of Ontario, pointed out that the agreement would aid those who had suffered through difficulty in establishing their status as residents. "During the war, there was considerable movement of population from one part of Canada to another. This has been especially true in connection with individuals found to have tuberculosis and requiring treatment, but who had not been long enough in the Province to which they moved to be entitled to the benefits of free hospitalization. In the past it was frequently necessary to return these people to their home Province for treatment. Disruption of family life was further accentuated by this procedure and the control of tuberculosis made more difficult."

Steps to correct the situation were first taken at the Interprovincial Conference on Health and Welfare which was held in Toronto in January 1944 under the chairmanship of Dr. Vivian and attended by

Ministers of Health from five Provinces. Under the agreement which has been reached, the one-year residence rule can be waived in Ontario and Quebec. Recently, Saskatchewan signed a similar legal agreement, and agreements are pending with Alberta and Manitoba.

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### **Personals**

DR. N. R. RAWSON, D.P.H., Government Medical Officer at Chesterfield Inlet, rendered medical services in the serious typhoid epidemic which occurred at Cape Dorset, at the westerly end of Hudson Strait, last summer. Cape Dorset is in Baffin Island, a tract of 211,000 square miles representing the largest insular area of Canada's arctic possessions. Before Dr. Rawson's arrival, forty-five Eskimos had died. He found thirteen cases, six of them critical. Other cases were reported at Shorback Inlet. Medical supplies were dropped by parachute.

ON RETURNING from service overseas, Dr. Milton H. Brown has been promoted to the rank of Professor in the Department of Hygiene and Preventive Medicine in the Faculty of Medicine and School of Hygiene, University of Toronto, and has also resumed his appointment in the Connaught Laboratories. Dr. Brown proceeded on active service in December 1939 and had a distinguished record. He served as Director of Hygiene (Canadian Army Overseas), and received the O.B.E. in 1943.

## Books

*Public Health Nursing in Canada — Principles and Practice.* By Florence H. M. Emory Associate Director, School of Nursing, University of Toronto. Toronto: The Macmillan Company of Canada Limited, 1945. 554 pages. \$3.00.

IT IS altogether fitting that this first Canadian book on public health nursing should come from within that profession rather than from without, and particularly from one who, following an invaluable experience in the field, has had much to do, during the past twenty years, with the special training of public health nurses for service in this country and in many other parts of the world. It is somewhat characteristic of the profession that publication of this book has been postponed until the validity of the principles and practices which it expounds had been proven by the most crucial test—their applicability in varied situations and circumstances. The volume appears now at a most opportune time when, as a direct result of the high quality of service given by members of the profession, public health nursing is firmly established as one of the primary essentials of public health practice, and, its budget being generally recognized as one yielding the highest dividend, the demand for personnel far exceeds the supply.

The book is dedicated "to the public health nurse of the future as an aid in the preparation of the practice of public health nursing". It is not, however, a text book in the ordinary sense of the word, but an interpretation and analysis of the philosophy and practice of public health nursing. Though written primarily for the young student, "there are others", as Miss Kathleen Russell, Director of the School of Nursing, University of Toronto, states in the foreword—"the present practitioners, older and younger alike, who will be grateful to the author and her collaborators for the thoughtful effort that has been put into this volume. Here they will find guidance and counsel, knowledge and wisdom, which are sorely needed." But there is a wider field, public health administrators, medical officers of health, physicians, nurses-in-training, their supervisors and instructors, social workers, professional and voluntary, and school teachers, among others,

who will want to read and re-read this book and keep it for future reference.

The background of medicine and public health and the origin of the public health nurse through the convergence of visiting nursing and preventive medicine are first reviewed. On this history the later developments are traced with emphasis on the Canadian scene, leading, almost imperceptibly, to the detailed presentation and analytical discussion of the public health nurse of to-day, her function, her selection, her preparation, her relationships with other professional workers and the community at large; of the organization and administration of public health nursing service, representative programmes, supervision and the supervisor records and recording, the relationship of public health agency to nursing education, and of the public health nurse to the organized profession. One chapter of part I of the book is devoted to consideration of national health insurance as related to community health nursing and one to a challenging survey of the future, its inevitable change and necessary adjustments. In part II, approximately two hundred pages, the author has had the assistance of other specialists, all well-known authorities in their respective fields. This part deals with methods and technical procedures in public health nursing—visiting nursing, maternal and child, hygiene communicable disease control, industrial and mental hygiene, and with the public health nurse as liaison between the hospital and the community. The book is thus strictly in conformity with its title; it reflects and represents the public health nurse's point-of-view on public health nursing subjects or problems and, with the exception of a chapter on mental hygiene, is entirely the product of the public health nurse herself; indeed, it typifies that service in its altruistic approach, in the clarity of expression without the use of technical terms, in its characteristic restraint, freedom from dogmatism and avoidance of anything resembling propaganda.

Throughout the book, in all its chapters, the underlying theme of service and co-operation is woven into the nurse's way of life. The ideal of service prompts and guides



the candidate in choosing the profession and in her later practice; it is nurtured and used as a basis on which instruction in every phase of her training is given, and its general recognition and appreciation on the part of the public give the public health nurse the entirely free entrée to every household. Without the nurse's understanding co-operation with all her associates, her work cannot be effective; individualism must be subordinated to the combined effort and the common goal. Possibilities of wider service are not to be interpreted as opportunities for increasing the status of the public health nursing division, but as responsibilities for the well-being of the community; the ideal must be steadily blended with the practical, and Utopian objectives tempered with reality. While principles do not change, their application is necessarily varied with the situation, with the urgency of the need, its relative importance and the available means. The public health nurse must realize that her program is only part of a whole, a part not to be exploited to the detriment of other essential parts. She must realize, too, that the ideal, the final goal, requires long, patient and persistent effort. Its attainment is dependent, often, on public opinion, and "the method par excellence of gaining support and help for a specific health service is through the person who would benefit therefrom". Attainment of the goal, therefore, is dependent largely on the nurse herself, on her ability to help her community and to create, through her service, a favourable public opinion. She, therefore, must be on constant guard not to deceive either herself or others. Enthusiasm is a most desirable and commendable trait but when based on false premises may militate seriously and properly against any sound program. "To surmise that such and such is needed without factual data to support the claim is to proceed upon a weak premise indeed; but to determine what is needed, is to proceed along lines both scientific and intelligent. . . . The wise worker will stop at given intervals to review what has been accomplished. . . . Is improvement shown by the community's vital statistics, the number of children immunized, the number of defects corrected in pre-school and school-age children, and are the laws of healthful living adopted by a larger percentage of the population?" The realistic balance

does not clash with the ideal but it serves to control misconceptions and self-deception. "The supervisor," the author says, "who does not wish to be helpful and who lacks either knowledge or spirit to make her so, has no brief for undertaking the supervisory function. . . . The grade teacher is the key to the whole (school health) programme. No matter how well organized a school health service may be, without the real co-operation of the grade teacher, it has little influence on the child and its efficiency is questionable. . . . The school health programme may be considered the joint activity of all concerned with the school life of the child—the parent, principal, teacher, doctor, nutritionist, mental hygienist, dentist, nurse and janitor." Accumulated and well-assimilated practical experience thus recognizes the part played by others, especially the janitor, in a successful programme.

The work of the nurse and her aides under different types of organization, official and voluntary, the advantages and disadvantages of centralization and decentralization, of generalization and specialization, etc. are fairly discussed without bias. Selected representative programmes of work at the provincial and municipal level and outlines of the organization of the Canadian Red Cross Association, the Child Welfare Organization of Montreal, and the Victorian Order of Nurses of Canada, are given. While certain methods and techniques are presented, emphasis is constantly laid on the need for adapting the action to the situation; sometimes, it is pointed out, experimental trial of several methods must be made before the best programme can be laid down.

In its development, public health nursing has experienced a marked change in emphasis: the preventive function now dominates, the nurse has become the health teacher, the guide, whose main purpose is to preserve and to promote health rather than to repair the damages of disease. But this shift in emphasis is by no means a complete divorcement of "sick nursing" and "health nursing". Sick nursing is recognized as one of the most advantageous approaches to health nursing and all sick nursing, whether in the hospital or at the home, whether by the private special duty nurse or by the community nurse, offers opportunities and therefore responsibilities for health nursing. This

concept has been accepted by the general nursing profession and particularly by those responsible for the hospital schools of training, with the result that a new member, the health instructor, has been added to the staff of those hospital schools. Tribute is paid to the nursing organizations—the Canadian Nurses' Association and the various hospital alumnae who have so generously provided fellowships and scholarships for the special training of such instructors. The changing emphasis in the work of the public health nurse and the appreciation of the importance and possibilities of prevention on the part of the general nursing body have necessitated great changes in nursing education. New courses, with different objectives, different contents, different methods had to be devised but basic to all is a sound understanding rather than a superficial and supplementary knowledge of man, of the community's problems, of health and disease, of sociology and social medicine. This development of training, from one year added to a general nurse's course to a university course of four or five years, including sickness nursing and leading to a baccalaureate, is fully explained, although little is said of the amount of time, effort, study, and experiment which this development required.

The public health nurse, then, is a highly-skilled specialist equipped with superior technical knowledge, a well-trained mind, deep understanding of human needs, a sym-

pathy for human failings; able to discriminate between essentials and non-essentials, between facts and fancies; able to measure objectively public health problems, to adapt general principles to the solution of the specific problem; able too, critically to evaluate results. The medical officer of health need fear no undermining of his position by the nurse who follows the ethics and practices outlined in this book, but rather he will find in her his right hand. The physician will find in her no competitor in the practice of medicine, but a loyal associate ready and able to carry over to his patients and to others in the community, probably more effectually than he could himself, the information they need to guide them on the road to health.

Special mention should be made of the general set-up of the books, and its unusually legible printing. The headings, well set out in black face type, and the chapter summaries give the desired emphasis to salient features; these will be appreciated particularly by the student. Sources of many apt quotations from many fields of citizenship and learning are clearly indicated. General bibliographies are given for each chapter; the index of ten pages is ample.

The book is a distinct contribution not only to public health nursing, but also to public health and the broader application of medicine. Miss Emory and her collaborators are indeed to be congratulated on this achievement.

N. E. McKinnon

